

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A polyol composition suitable for the preparation of a rigid polyisocyanate-based foam comprising:

a) blowing agent comprising formic acid, wherein said formic acid comprising 0.5 to 8 parts per 100 parts by weight of said polyol composition including said formic acid; and

b) an aromatic polyol comprising an aromatic polyoxyalkylene polyol based on an initiator obtained from the condensation of a phenol with an aldehyde, wherein said aromatic polyoxyalkylene polyol comprising at least 20 weight percent based on total weight of the polyol composition; and

c) a physical blowing agent, wherein said physical blowing agent being a hydrocarbon selected from the group consisting of butane, pentane, cyclopentane, hexane, cyclohexane, heptane, a C₁-C₄ hydrofluoroalkane, C₁-C₄ hydrochlorofluoroalkane, and isomers thereof.

2) (Cancelled).

3) (Cancelled).

4) (Cancelled).

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5) (Currently Amended) The polyol composition of Claim 4 1 wherein the physical blowing agent is a hydrofluoroalkane selected from the group consisting of difluoromethane, difluoroethane, tetrafluoroethane, pentafluoropropane and hexafluorobutane.

6) (Cancelled)

7) (Cancelled)

8) (Previously Amended) The polyol composition of Claim 1, wherein said polyol composition further comprising an aromatic polyester polyol.

9) (Previously Amended) A multi component system suitable for the preparation of rigid polyisocyanate-based foam comprising:

a first component, said first component being an aromatic polyisocyanate; and

a second component, said second component being a polyol composition as claimed in Claim 1.

10) (Original) A process for preparing a polyisocyanate-based foam which comprises bringing together under foam-forming

conditions a polyisocyanate with a polyol composition as claimed in Claim 1.

11) (Previously Amended) The process of Claim 10, wherein the polyisocyanate is present in an amount to provide for an isocyanate reaction index of from about 80 to about 150.

12) (Previously Amended) The process of Claim 10, wherein the polyisocyanate is present in an amount to provide for an isocyanate reaction index of from about 150 to about 600.

13) (Currently Amended) A polyurethane foam obtained by bringing together under foam-forming conditions a polyisocyanate with a polyol composition characterized in that:

a) the polyisocyanate is present in an amount to provide for an isocyanate reaction index of from 80 to 150; and

b) the polyol composition comprises (i) formic acid, wherein said formic acid comprising 0.5 to 8 parts per 100 parts by weight of said polyol composition including said formic acid; and (ii) an aromatic polyoxyalkylene polyol based on an initiator obtained from the condensation of a phenol with an aldehyde, wherein said aromatic polyoxyalkylene polyol comprising at least 20 weight percent based on total weight of the polyol composition; and (iii) a physical blowing agent, wherein said physical blowing agent being a hydrocarbon selected from the group consisting of butane, pentane, cyclopentane, hexane, cyclohexane, heptane, a C₁-C₄ hydrofluoroalkane, C₁-C₄ hydrochlorofluoroalkane, and isomers thereof.

14) (Currently Amended) A polyisocyanurate foam obtained by bringing together under foam-forming conditions a polyisocyanate with a polyol composition characterized in that:

a) the polyisocyanate is present in an amount to provide for an isocyanate reaction index of from 150 to 600; and

b) the polyol composition comprises (i) formic acid, wherein said formic acid comprising 0.5 to 8 parts per 100 parts by weight of said polyol composition including said formic acid; and (ii) an aromatic polyoxyalkylene polyol based on an initiator obtained from the condensation of a phenol with an aldehyde, wherein said aromatic polyoxyalkylene polyol comprising at least 20 weight percent based on total weight of the polyol composition; and (iii) a physical blowing agent, wherein said physical blowing agent being a hydrocarbon selected from the group consisting of butane, pentane, cyclopentane, hexane, cyclohexane, heptane, a C₁-C₄ hydrofluoroalkane, C₁-C₄ hydrochlorofluoroalkane, and isomers thereof.

15) (Original) A laminate comprising the polyurethane foam of Claim 13 or Claim 14.

16) (Previously Amended) A process for preparing a closed-celled polyisocyanurate foam by bringing into contact under foam-forming conditions a polyisocyanate with a polyol composition in the presence of a blowing agent mixture wherein the polyol composition comprises an aromatic polyester polyol and an aromatic polyether polyol based on an initiator obtained from the condensation of a phenol with an aldehyde, wherein said aromatic

polyoxyalkylene polyol comprising at least 20 weight percent based on total weight of the polyol composition; and wherein the blowing agent mixture comprises formic acid and a hydrofluoroalkane selected from the group consisting of tetrafluoroethane, pentafluoropropane, heptafluoropropane and pentafluorobutane, said formic acid comprising 0.5 to 8 parts per 100 parts by weight of said polyol composition including said formic acid, and characterized in that the polyisocyanate is present in an amount to provide for an isocyanate reaction index of from greater than 150 to about 600.

17) (Original) The process of Claim 16 wherein water is present in an amount of from 0 to about 2 parts by weight per 100 parts of the combined weight of the polyol composition and blowing agent mixture.

18) (Previously Amended) The process of Claim 16 wherein the aromatic polyether polyol being selected from the group consisting of a toluenediamine-initiated polyol, a Mannich base-initiated polyol, a methylene diphenylamine-initiated polyol, a phenol-acetone condensate-initiated polyol, ~~or~~ a phenol-formaldehyde condensate-initiated polyol, and combination thereof.

19) (Previously Amended) A process for preparing a closed-celled polyisocyanurate foam by bringing into contact under foam-forming conditions a polyisocyanate with a polyol composition in the presence of a blowing agent mixture wherein the polyol composition comprises an aromatic polyester polyol and an aromatic polyether polyol based on an initiator obtained from the condensation of a phenol with an aldehyde, wherein said aromatic

polyoxyalkylene polyol comprising at least 20 weight percent based on total weight of the polyol composition; and wherein the blowing agent mixture comprises formic acid and a hydrocarbon selected from the group consisting of butane, pentane, cyclopentane, hexane, cyclohexane, and heptane, and the isomers thereof, said formic acid comprising 0.5 to 8 parts per 100 parts by weight of said polyol composition including said formic acid, and characterized in that the polyisocyanate is present in an amount to provide for an isocyanate reaction index of from greater than 150 to about 600.

20) (Previously Amended) The process of either Claims 16 or 19, wherein the polyisocyanate is an aromatic polyisocyanate having on average from 2.8 to 3.2 isocyanate groups per molecule.

21) (Previously Amended) A two component foam forming system comprising:

a) an aromatic polyisocyanate having an average of from 2.8 to 3.2 isocyanate groups per molecule; and

b) a polyol composition that contains (i) an aromatic polyester polyol and an aromatic polyether polyol based on an initiator obtained from the condensation of a phenol with an aldehyde, wherein said aromatic polyoxyalkylene polyol comprising at least 20 weight percent based on total weight of the polyol composition; and (ii) a blowing agent mixture which comprises formic acid and a hydrofluoroalkane selected from the group consisting of tetrafluoroethane, pentafluoropropane, heptafluoropropane and pentafluorobutane, said formic acid comprising 0.5 to 8 parts per 100 parts by weight of said polyol composition including said formic acid.

22) (Previously Amended) A two component foam forming system comprising:

a) An aromatic polyisocyanate having an average of from 2.8 to 3.2 isocyanate groups per molecule; and

b) A polyol composition that contains: (i) an aromatic polyester polyol and an aromatic polyether polyol based on an initiator obtained from the condensation of a phenol with an aldehyde, wherein said aromatic polyoxyalkylene polyol comprising at least 20 weight percent based on total weight of the polyol composition; and (ii) a blowing agent mixture comprising formic acid and a hydrocarbon selected from the group consisting of butane, pentane, cyclopentane, hexane, cyclohexane, and heptane, and the isomers thereof, wherein said formic acid comprising 0.5 to 8 parts per 100 parts by weight of said polyol composition including said formic acid.

23) (New) A method of improving fire retardancy of a polyisocyanate-based foam comprising the steps of:

providing a polyol composition comprising;

a) blowing agent comprising formic acid, wherein said formic acid comprising 0.5 to 8 parts per 100 parts by weight of said polyol composition including said formic acid;

b) an aromatic polyol comprising an aromatic polyoxyalkylene polyol based on an initiator obtained from the condensation of a phenol with an aldehyde, wherein said aromatic polyoxyalkylene polyol comprising at least 20 weight percent based on total weight of the polyol composition; and

c) a physical blowing agent, wherein said physical blowing agent being a hydrocarbon selected from the group consisting of butane, pentane, cyclopentane, hexane, cyclohexane,

heptane, a C₁-C₄ hydrofluoroalkane, C₁-C₄ hydrochlorofluoroalkane, and isomers thereof;

providing a polyisocyanate;

bringing together under foam-forming conditions said polyol composition and said polyisocyanate; and

thereby forming a polyisocyanate-based foam having an improved fire retardancy.

24) (New) The method of improving fire retardancy of a polyisocyanate-based foam according to Claim 23, wherein said polyisocyanate is an aromatic polyisocyanate having on average from 2.8 to 3.2 isocyanate groups per molecule.

25) (New) The method of improving fire retardancy of a polyisocyanate-based foam according to Claim 23, wherein said said foam being a laminate.

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